

REMARKS

This is in full and timely response to the Office Action dated April 21, 2003.

Reconsideration and reexamination are respectfully requested in view of the foregoing amendment and the following remarks.

By the foregoing amendment, claims 1, 3 to 7, 9 to 13, 15, 17 and 18 have been amended. Claims 3, 5, 10 to 12, 15, 17 and 18 were indicated by the Examiner as being allowable if rewritten into independent form and amended to overcome the rejections based on 35 U.S.C. 112, second paragraph. Claims 1 to 18 are now pending in this application.

The drawings were objected to by the Examiner because Fig. 1 was not designated by the legend --Prior Art--. By this amendment, the Applicants propose amending Fig. 1 to add the legend --Prior Art--, as suggested by the Examiner.

The specification has been reviewed and revised to correct minor errors. For example, on page 6, line 24, page 9, line 1, page 11, line 6, page 14, line 24, and page 18, line 18, the terms "facing" and "faces" have been changed into --opposing-- and --opposes--, respectively. Similar changes were suggested by the Examiner on page 3 of the Office Action for claims 6, 12, and 18, and these changes find support in Figs. 2, 3, 7, and 8 of the original drawings. On page 7, line 1, the phrase --first and second convex portions-- has been added before "coinciding." This change was suggested by the Examiner on page 3 of the Office Action for claim 6, and finds support, for example, in the original language of claim 18. On page 21, lines 12 and 15, the label "5D" has been changed into --5A-- to correspond with the original drawings. On page 28, line 12, the phrase --outer circumference portion-- has been added before

"6C" to correct an obvious informality. Support for this language is found, for example, on page 28, line 16, of the original specification.

Claims 2 to 4, 6, 8, 9, 12, 14, 15, and 18 were objected to for the reasons stated on page 3 of the Office Action. In response, the claims have been carefully reviewed and revised to correct each of the informalities noted by the Examiner. Specifically, the claimed "outer circumference portion of said second optical lens" has been given a proper antecedent basis in claims 1, 7, and 13; the term "facing" in claims 6, 12, and 18 has been changed into --opposing-- to correspond with what is described in the specification and drawings; and the phrase --first and second convex portions-- has been added to claim 6 to clarify the claim limitation relating to the claimed "center axes." Other minor changes have also been made to the claims to correct minor informalities in the nature of grammar and syntax. For example, the phrase "the other surface" in claims 6, 12, and 18 has been changed into --another surface--. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the claim objections stated on page 3 of the Office Action.

Rejection of Claims 1, 3, 5, 7, 11, 13 and 17 Under 35 U.S.C. 112

Claims 1, 3, 5, 7, 11, 13 and 17 (and their respective dependent claims) stand rejected under 35 U.S.C. 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the Applicants' invention. In response to this rejection, the claims have been carefully reviewed and amended to correct each of the alleged problems noted by the Examiner on pages 4 to 5 of the Office Action. Specifically, claims 1, 7 and 13

have been amended to clarify that the outer circumference portion of the second optical lens is fixed in place; claims 5, 11, and 17 have been amended to clarify that the outer circumference portion of the second optical lens is bonded via an intermediate member; claim 7 has been amended to clarify that the outer circumference portion of the second optical lens is bonded together with the outer circumference portion of the first optical lens; and claim 3 has been amended to clarify that the same facing surfaces are recited in the last paragraph of the claim as in the first two paragraphs. Accordingly, reconsideration and withdrawal of the rejections of claims 1, 3, 5, 7, 11, 13, and 17 under 35 U.S.C. 112, second paragraph, are respectfully requested.

Rejection of Claims 1, 6, and 13 Based On Miura '925

Claims 1, 6, and 13 stand rejected under 35 U.S.C. 102(e) as allegedly being anticipated by Miura (U.S. Patent Publication No. US 2002/0109925). The Examiner contends that Fig. 5 and paragraph Nos. 0025 and 0026 of Miura disclose all of the limitations of the Applicants' invention recited in these claims. To the extent that this rejection might still be applied to the claims as amended, it is respectfully traversed for the following reasons.

Miura discloses a playback apparatus for a disc 100 that includes, among other things, a collimator lens 13 and an objective lens 1. The collimator lens 13 produces a parallel beam for the objective lens 1. The objective lens 1 includes a protective protrusion 1p covered by a protective member 1b made of a soft material. The protective member 1b prevents damage to the lens 1 and the disc 100 in the case where the focus servo moves the objective lens 1 too

close to the disc 100 (i.e., the protective member 1b rather than the objective lens 1 collides with the disc 100).

Miura differs from the Applicants' invention because the "second" lens in Miura (as identified by the Examiner) is a collimator lens 13 and is not fixed in place relative to the "first" or objective lens 1. Miura describes a focus servo that moves the objective lens 1 along its optical axis to maintain a proper working distance from the disc 100. Miura does not disclose that the collimator lens 13 is fixed in place relative to the movable objective lens 1. Indeed, such an arrangement would be unusual since the collimator lens 13 functions to create a parallel light beam between the objective lens 1 and the collimator lens 13, thereby allowing the objective lens 1 to move relative to the collimator lens 13 without affecting the light beam.

In contrast, the Applicants' invention is directed to an optical system that uses a pair of optical lenses 6 and 30 that are fixed together relative to each other to form a so-called "two-group lens." The optical system in the Applicants' invention is not formed by an objective lens and a collimator lens, but rather, by two optical lenses 6, 30 that are fixed together and used in place of a single objective lens. The two optical lenses 6, 30 in the Applicants' invention can be used in conjunction with a collimator lens 95, as shown in Fig. 10, but are not fixed in place relative to the collimator lens. The optical system of the Applicants' invention allows the two lenses 6 and 30 to be positioned more precisely relative to each other to improve the accuracy of the optical system.

To further emphasize the differences between the Applicants' invention and the teachings of Miura, the last paragraphs of claims 1 and 13 have been amended to recite that the

outer circumference portion of the first optical lens and an outer circumference portion of the second optical lens are fixed in place relative to each other. Since Miura does not disclose a two-group lens in which two optical lenses are fixed in position relative to each other, it is respectfully submitted that Miura does not anticipate the Applicants' claims 1 and 13.

With regard to claim 6, it is respectfully submitted that Miura does not disclose an outer circumference portion positioned around the collimator lens 13, nor does Miura disclose that such an outer circumference portion of the collimator lens 13 is fixed in place relative to an outer circumference portion of the first optical lens.

Accordingly, reconsideration and withdrawal of the rejection of claims 1, 6, and 13 under 35 U.S.C. 102(e) based on Miura are respectfully requested.

Rejection of Claims 7 to 9 Based On Kurihara '509

Claims 7 to 9 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Kurihara (U.S. Patent No. 5,024,509). The Examiner contends that Figs. 3, 20, 29 and 33, and column 1, line 6, to column 2, line 7, of Kurihara teach all of the features of the Applicants' invention recited in claims 7 to 9. To the extent that this rejection might still be applied to these claims as amended, it is respectfully traversed for the following reasons.

Kurihara discloses a structural combination of plastic lenses 1, 2 referred to as a "plastic doublet." The lenses 1, 2 are fitted and held together by a friction or interference fit at the outer circumference of the lenses 1, 2. Kurihara teaches a specific amount of interference that should be used to avoid eccentricity/play and deformation of the lens in the optical field (see,

e.g., column 3, lines 17 to 42). However, Kurihara does not disclose bonding the two lenses together with an adhesive, as in the Applicants' invention. In fact, Kurihara expressly teaches away from an adhesive bonding by focusing on the specific manner in which the two lenses should be held together using a friction/interference fit.

To further emphasize the differences between the Applicants' claimed invention and Kurihara, claim 7 has been amended to recite that the outer circumferences of the first and second optical lenses are bonded together with an adhesive.

Accordingly, reconsideration and withdrawal of the rejection of claims 7 to 9 under 35 U.S.C. 102(e) based on Miura are respectfully requested.

Rejection of Claims 2 and 14 Based On Miura

Claims 2 and 14 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Miura (U.S. Patent Publication No. US 2002/0109925). The Examiner contends that Miura discloses the claimed invention, except for the claimed second optical lens having a flat outer circumference portion. The Examiner takes Judicial Notice that such lenses are well known in the art. To the extent that this rejection might still be applied to the claims as amended, it is respectfully traversed for the following reasons.

As explained above in connection with the Examiner's rejection of claims 1 and 14 based on Miura, Miura does not disclose an optical system in which first and second optical lenses are fixed in place relative to each other. Accordingly, the additional features recited in

claims 2 and 14 relating to such first and second optical lenses would not have been obvious based on the teachings of Miura.

Moreover, it is respectfully submitted that the Examiner's reliance on Judicial Notice is not appropriate in this case. If the Examiner intends to maintain this rejection, it is respectfully requested that he provide a prior art teaching of a collimator lens having a flat outer circumference portion that could be used in place of the collimator lens 13 of Miura, and particularly one with a flat outer portion that would face the flat outer portion of the objective lens 1 in Miura.

Accordingly, reconsideration and withdrawal of the rejection of claims 2 and 14 under 35 U.S.C. 103(a) based on Miura are respectfully requested.

Rejection of Claims 4 and 16 Based On Miura '925 in View of Nomura et al. '827

Claims 4 and 16 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Miura in view of Nomura et al. (U.S. Patent No. 6,034,827). The Examiner contends that Miura teaches the claimed invention, except for the outer circumference portion positioned around a flat portion and the thickness being greater than the thickness of the flat portion. The Examiner relies upon Nomura et al. for a teaching of these features. To the extent that this rejection might still be applied to the claims as amended, it is respectfully traversed for the following reasons.

Nomura et al. discloses an optical lens A (Fig. 4) having a flange at an outer periphery of an optically functioning portion. A flat portion is provided between the flange and

the optically functioning portion. However, Nomura et al. does not disclose anything about a second optical lens that is fixed in place relative to the optical lens A, as in the Applicants' invention.

As explained above in connection with the Examiner's rejection of claims 1 and 14 based on Miura, Miura does not disclose an optical system in which first and second optical lenses are fixed in place relative to each other. Since neither of the cited references discloses this feature of the Applicants' invention, it is respectfully submitted that the Applicants' invention would not have been obvious based on the combined teachings of these references.

Accordingly, reconsideration and withdrawal of the rejection of claims 4 and 16 under 35 U.S.C. 103(a) based on the combined teachings of Miura and Nomura et al. are respectfully requested.

Allowable Subject Matter

On page 9 of the Office Action, the Examiner stated that claims 3, 5, 10 to 12, 15, 17, and 18 would be allowable if rewritten in independent form and amended to overcome the rejections under 35 U.S.C. 112, second paragraph. Accordingly, claims 10, 11 and 12 have been rewritten in independent form for allowance. Claims 3, 5, 15, 17, and 18 were not rewritten into independent form, but continue to depend from independent claims 1 and 13, respectively, and are therefore believed to be in condition for allowance for the reasons stated above regarding these claims.

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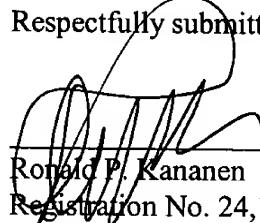
PATENT APPLICATION

Applicants respectfully submit that all of the pending claims 1 to 18 are now in condition for allowance, and request that a timely Notice of Allowance be issued for this application.

If the Examiner has any comments or suggestions that could place this application into even better form, the Examiner is encouraged to contact the Applicants' undersigned representative at the telephone number listed below.

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Respectfully submitted by:


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